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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,657	09/29/2003	Byung Soo Song	HI-0179	9020
34610 7590 02/14/2008 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200			EXAMINER RAHMJOO, MANUCHER	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 02/14/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/671,657

Applicant(s)

SONG ET AL.

Examiner

Mike Rahmjoo

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,5,9-11,28 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-5,9-11,28,31-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5,9-11 and 28, 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba et al (US Patent 6496194), hereinafter, Mikoshiba in view of Okomoto et al (publication number 2001- 083926).

As per claims 4 and 28 Mikoshiba teaches detecting each false contour generation regions from each of first video data for a previous frame period and a second video data for a current frame period, each false contour generation region including a pixel corresponding to a gray scale generating a false contour and pixels corresponding to adjacent gray scales see for example the abstract (false contour occurrence corresponding to false contour detection in video) and fig. 15 to 18 B achieves the reduction (corresponding to generation and detection of false contours) of false contours by comparing the luminance levels of pixels between two successive frames and by superimposing a weighted equalizing pulse on any pixel whose bit state

has changed and column 15 lines 60- 67 for the false contour compensation between two successive frames corresponding to first and second video data;

extracting a motion information from the detected false contour generation regions of the first video data the second video data see for example column 12 lines 45- 55 and fig. 14 wherein the comparator 410a which compares bit data in the n-th frame with bit data in the (n+1)th frame, and outputs "+1" for any bit in the bit data that changed from ON to OFF (comparing and outputting steps corresponding to extracting motion information);

displaying transformed video data based on the compensated false contour corresponding to for example the abstract and column 15 line 59 which is display method of reduced false contours;

setting a compensation value in proportion to the velocity value from the motion information see for example column 16 lines 50- 55 wherein compensation is a based on the moving speed and column 36 lines 45- 50 wherein reducing of halftone disturbance (corresponding to compensation) is made for moving images at various speeds and directions;

adding or subtracting the compensation value to or from any pixels whose gray scale (adjusting gray scale) has generated the false contour depending on a direction (e.g., column 36 lines 45- 50 for the various direction and fig. 26- 31b) from the motion information see for example fig. 23 and column 23 lines 8- 15 wherein motion compensation equalizing (addition and subtraction) and luminance blocks which are used to display gray scale level of a pixel are used.

However, Mikoshiba does not teach setting the compensation value based on a size of the gray scale.

Okamoto et al teaches setting the compensation value based on a size of the gray scale (steps s4- s5 corresponding compensation according to the size of the gradation variation).

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Okomoto et al into Mikoshiba to have compensation value based on the size of the gray scale and therefore affect the gradation variations by accurate detection resulting into accurate compensation of the false contour and high quality animation production on display see for example the abstract.

As per claims 5 and 31 Mikoshiba teaches the first video data of the previous frame period is stored such that the first video data is delayed during one frame period by a frame memory see for example fig. 14 and column 12 line 39.

As per claims 9 and 32 Mikoshiba teaches the false contour is generated when a gray scale having a combination of a plurality of sub-fields is any one of 16, 32, 64 and 128 see for example fig. 1 and 19.

As per claims 10 and 33 Mikoshiba teaches matching the first video data of the previous frame period with the second video data of the current frame period see for example column 12 lines 45- 55 for the equalization through comparison performed in fig. 14 corresponding to matching between successive frames; and extracting (corresponding to determination through comparison) the motion information from a

change of the movement between the false contour generation region of the first video data and second false contour generation region of the second video data see for example column 12 lines 45- 55 and fig. 14 wherein the comparator 410a which compares bit data in the n-th frame with bit data in the (n+1)th frame, and outputs "+1" for any bit in the bit data that changed from ON to OFF (comparing and outputting steps corresponding to extracting motion information).

As per claims 11 and 34 Mikoshiba teaches size (corresponding to increase from left to the right of the screen in column 9 line 25 and also the increase to 256 scale in column 11 line 42), direction and velocity value (corresponding to speed) of a gray scale see for example column 9 lines 20- 35.

Response to Arguments

Applicant's arguments filed 01/22/08 have been fully considered but they are not persuasive.

In response to applicant's arguments on page 7- 9 wherein applicant argues against "setting a compensation value in proportion to a velocity vale", Examiner recites the portion of the specification which teaches said amended portion of claim 4 in [0062] as follows:

"The motion information extracted from the motion extracting part 43 is inputted to the false contour compensation part 44 and used to compensate the false contour. In other words, the false contour compensation part 44

receives the motion information extracted from the motion extracting part 43 to compensate the false contour generation region by using a compensation value to which the motion information is reflected. The false contour compensation part 44 sets a proper compensation value (ex. number of equalizing pulses) according to the velocity value included in the motion information. The compensation value is varied in proportion to largeness and smallness of the velocity value. In other words, in case the velocity value is small, the compensation value is set small relatively whereas in case the velocity value is large, the compensation value is set large relatively."

Mikoshiba is deplete with said teachings of false contour compensation. An example of such a compensation is made in column 15 lines 59- 67 which recites "The halftone display method (motion compensation equalizing pulse method) explained with reference to FIGS. 15 to 18B achieves the reduction of false contours by comparing the luminance levels of pixels between two successive frames and by superimposing a weighted equalizing pulse on any pixel whose bit state has changed". Therefore, said "motion compensation equalizing pulse method" achieves false contour compensation which is in accordance with the underlined portion of applicant's disclosure which applies equalizing pulses to achieve false contour compensation. Column 16, lines 40-55 teaches "correct motion compensation is possible since the number of pixels to which *equalizing pulses are applied is equal to the moving speed*". Therefore false contour compensation and speed (i.e., velocity) being equal are the criteria under consideration which is referenced via Mishikoba.

Column 36 lines 45- 50 is suggestive of the same teachings (i.e., setting a compensation based on speeds with a threshold as well as direction) but at various speeds.

The secondary reference made of the record used for rejection (i.e., Okomoto et al), on the other hand, clearly teaches the same step as argue by applicant in Fig. 1 steps s1- s5 where in the S2 process, by detecting *moving speed* of an image for each pixel at the original signal, movement information is obtained (S3) and a compensating gradation signal according to the gradation information and the *movement information* is found (S4), and the compensating gradation signal is outputted to the original signal (S5). Therefore, since an animation *false contour* is detected in relation to two factors of space and time, not only *size* of the gradation variation but also a pixel range affected by the gradation variation can be accurately detected, and the animation false contour can be *accurately compensate*

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Rahmjoo whose telephone number is 571-272-7789. The examiner can normally be reached on 8 AM- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Rahmjoo



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
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February 04, 2008